



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,742	08/08/2001	Bret Walczynski	2970.92USU1	2932
23552	7590	04/16/2004	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			THORNTON, YVETTE C	
			ART UNIT	PAPER NUMBER

1752

DATE MAILED: 04/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/924,742

Applicant(s)

WALCZYNSKI, BRET

Examiner

Yvette C. Thornton

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 5-9, 11-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 5-9, 11-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

This is written in reference to application number 09/924742 filed on August 8, 2001 and published as US 2002/0048715 A on April 25, 2002.

Response to Amendment

1. Claims 2-4 and 10 have been cancelled. Claims 1, 5-9 and 11-12 are currently pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over VanIseghem (US 4,764,449 A) in further view of Etter (US 4,115,125 A) and Lin (US 5,100,963 A). VanIseghem teaches a sandblast photoresist laminate article comprising an adhesive layer, a membrane support layer and a resist layer (c. 2, l. 1-7). The said articles are typically made by coating the membrane support with a resist composition. In one aspect the resist composition can be coated upon the membrane support using well known coating techniques. The adhesive layer can be coated on the opposite side of the membrane layer from the resist composition. Such coating steps can be done in tandem or simultaneously in production (c. 8, l. 60-68). Alternatively, the resist layer can be coated on the support membrane and the adhesive composition can be coated upon a film of resist composition,

which rests upon the membrane support layer. It is the examiner's position that this teaching meets the limitations of instant claim 7. A further alternative method of manufacturing the photoresist laminate comprises coating a support with a photoresist material to form a film of the resist on the support, separately coating a release liner sheet with a pressure sensitive adhesive composition to form a film of the adhesive on the liner, and contacting the uncoated side of the membrane support with the adhesive composition to form a photoresist laminate comprising a resist layer, a support membrane layer, an adhesive layer and the removable release liner (c. 9, l. 1-16). VanIseghem teaches that the adhesive layer can be water activated, pressure sensitive, heat activated or other adhesive form. The adhesive layer is preferably a pressure sensitive adhesive. In practice pressure sensitive adhesives commonly are used in conjunction with a pressure sensitive adhesive release liner comprising a backing material such as paper, textile, plastic film or metal foil. It is the examiner's position that the taught release liner constitutes a peelable carrier backing as presented in instant claims 11 and 12. The said adhesives typically comprise a polymeric composition in combination with a tackifier and an extender composition. Suitable base polymers include rubbers, styrene-elastomer-styrene block copolymers such as KRATON and synthetic polymers such as vinyl acetate and acrylate polymers (c. 8, l. 29-59). Figure 2 shows a structure wherein the resist layer is sandwiched between the support and the adhesive layer. It is the examiner's position that a laminate of figure 2 would meet the limitations of instant claim 7.

VanIseghem teaches all the limitations of the instant claims except it fails to teach the use of an adhesive selected from the group of instant claim 7. However, VanIseghem does teach that suitable adhesive polymers include rubbers, styrene-elastomer-styrene block

Application/Control Number: 09/924,742

Art Unit: 1752

copolymers such KRATON and synthetic polymers such as vinyl acetate and acrylate polymers (c. 8, l. 29-59). One of ordinary skill in the art would have been motivated by the teachings of VanIseghem to use any well known and conventional acrylate polymer in the adhesive layer. It is the examiner's position that the acrylates of instant claim 7 are well known and conventional pressure sensitive adhesives. This position is supported by the examples of Etter (see Table I), which exemplifies the use of n-butylacrylate adhesive materials such as COVINAX 179 and RHOPLEX N-560. Furthermore, Lin teaches that mixtures comprising alkyl acrylates such as methyl acrylate, butyl acrylate, 2-ethylhexyl acrylate, and ethyl acrylate are conventionally used in manufacturing pressure sensitive adhesives (c. 3, l. 31-c. 4, l. 34). It would have been obvious to one of ordinary skill in the art to use poly (n-butylacrylate), polymethyl acrylate, poly-2-ethylhexyl acrylate, polyethyl acrylate or mixtures thereof as the acrylate polymer of VanIseghem because it is well known and conventional in the art of pressure sensitive adhesives as exemplified by Etter and Lin. It would also have been obvious in light of the teachings of VanIseghem to use a release liner in combination with the taught adhesive layers because it is well known and conventional in the art (c. 8, l. 29-59).

3. Claims 1, 5-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schupp et al. (US 4,596,759 A) further in view of Ugolick et al. (US 5,993,961 A). Schupp teaches a novel multi-stratum photosensitive resist layer comprising an upper stratum (U) and a lower stratum (LS). Preferably the said multi-stratum resist layers are applied in the form of dry film resist. The upper stratum can first be applied onto a temporary base (T) from solution, and the lower stratum can be produced in a separate step by casting an

Art Unit: 1752

appropriate solution onto a cover sheet (C). The free surfaces of the upper and lower strata of the said laminate elements are then bonded to one another using pressure and if necessary, heat (c. 12, l. 50-67). It is also possible to first apply the upper stratum onto the temporary base by conventional application techniques such as casting, pressing-on or lamination, and then to apply the lower stratum onto the said upper stratum. (c. 12, l. 68-c. 13, l. 9).

Schupp teaches that the upper stratum consists of a positive working photosensitive resist material (c. 5, l. 31-c. 9, l. 31). The composition of the lower stratum is chosen so that it exhibits good adhesion to the substrate and to the upper stratum. When a dry film resist is desired, the lower stratum should exhibit only slight adhesion to the cover sheet, which makes it possible to peel off the cover sheet from the lower stratum (c. 9, l. 32-c. 10, l. 10).

Example 1 exemplifies a solution (a) being applied to a polyethylene terephthalate (PET) film and dried to form the upper stratum of the resist layer. A second solution (b) is applied to a second polyethylene terephthalate film to form the lower stratum. The lower layer is then laminated with a copper plated substrate and the second PET film was peeled off. The layer upper stratum was then laminated on the formed element. The formed element thus has a structure comprising the first PET film, an upper stratum, a lower stratum and a copper plated substrate (c. 16, l. 1-55). It is the examiner's position that the exemplified invention meets the limitations of the instant claim 1 wherein the taught upper stratum is the claimed resist layer; the taught lower stratum is the claimed pressure sensitive adhesive layer; and the copper substrate is the substrate. Further the second PET film meets the limitation of a carrier backing which can be peeled from the adhesive material. The exemplified invention

Art Unit: 1752

further meets the limitations of claim 7 wherein the upper stratum and lower stratum are in direct contact with each other.

Schupp teaches all the limitations of the instant claims except it fails to teach the use of an adhesive selected from the group of instant claims 1 and 7. Schupp does however exemplify the lower stratum being made from a composition comprising 70 parts of a copolymer of 35% of o-nitro- α -methylbenzyl acrylate, 1.6% acrylic acid and 63.4% methyl methacrylate (c. 16, l. 25-35). It is the examiner's position that methyl methacrylate and methyl acrylate, ethyl acrylate, 2-ethylhexyl acrylate and n-butyl acrylate are well known and conventional variants in the art of pressure sensitive adhesives. This position is supported by the teachings of Ugolick (US '961) which discloses that preferred acrylic based pressure sensitive adhesives comprise polymers of acrylic monomers, polymer of methacrylic monomers and copolymers, blends and mixtures thereof. Examples include methyl acrylate, ethyl acrylate, n-butyl acrylate, 2-ethylhexyl acrylate, and methyl methacrylate (c. 5, l. 26-48). It would have been obvious to one of ordinary skill in the art to substitute methyl acrylate, ethyl acrylate, n-butyl acrylate, or 2-ethylhexyl acrylate for the exemplified methyl methacrylate of Schupp and expect reasonably similar results.

4. Claims 7-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Couture et al. (US 5,415,971 A) in further view of Etter (US 4,115,125 A) and Lin (US 5,100,963 A). Couture teaches a photosensitive mask laminate having a photoimageable, pressure sensitive adhesive layer and a photoimageable masking layer (abstract). The laminate also includes a support layer and it can include a removable carrier layer and a

Art Unit: 1752

release layer (abstract; Fig. 1). The pressure sensitive layer of the laminate preferably comprises a photosensitive component, a binding resin, a tack imparting composition and optionally a photoinitiator or photocrosslinker (c. 3, l. 66-c. 4, l. 6). In negative working systems, the photohardening typically renders the exposed areas insoluble in water. However prior to exposure the adhesive layer is water soluble (c. 3, l. 38-46). Likewise, in a positive working system the adhesive layer would be water insoluble prior to exposure (c. 3, l. 15-42). Couture teaches that negative working systems are preferred (c. 3, l. 28-30). The tack imparting composition maybe a tackifier or a pressure sensitive adhesive. Representatives include natural rubbers, styrene-butadiene rubbers, acrylates, and vinyl acetate copolymers (c. 5, l. 3-20). Figure 1 depicts a structure comprising a carrier, a support, photoimageable layer, an adhesive layer and a protective layer. Couture teaches that the carrier layer is strippable from and adjacent to the support layer and a removable protective layer is adjacent to the pressure sensitive layer to render the laminate non-tacky during handling and processing. The said protective layer maybe a release coated film as described for the carrier film. It is the examiner's position that the said protective layer meets the limitations of a carrier, which can be peeled as set forth in instant claims 11 and 12. It is also the examiner's position that when the taught photoimageable pressure sensitive adhesive layer comprises the preferred negative working system in combination with the taught pressure sensitive adhesive, it meets the limitations of the instant claims wherein the adhesive layer is water soluble.

Couture teaches all the limitations of the instant claims except it fails to teach the use of an adhesive selected from the group of instant claim 7. Couture does however teach that suitable adhesive polymers include rubbers, styrene-butadiene polymers, vinyl acetate and

Art Unit: 1752

acrylate polymers (c. 5, l. 8-20). One of ordinary skill in the art would have been motivated by the teachings of Couture to use any well known and conventional acrylate polymer in the adhesive layer. It is the examiner's position that the acrylates of instant claim 7 are well known and conventional pressure sensitive adhesives. This position is supported by the examples of Etter (see Table I), which exemplifies the use of n-butylacrylate adhesive materials such as COVINAX 179 and RHOPLEX N-560. Furthermore, Lin teaches that mixtures comprising alkyl acrylates such as methyl acrylate, butyl acrylate, 2-ethylhexyl acrylate, and ethyl acrylate are conventionally used in manufacturing pressure sensitive adhesives (c. 3, l. 31-c. 4, l. 34). It would have been obvious to one of ordinary skill in the art to use poly(n-butylacrylate), polymethyl acrylate, poly-2-ethylhexyl acrylate, polyethyl acrylate or mixtures thereof as the acrylate polymer of Couture because it is well known and conventional in the art of pressure sensitive adhesives as exemplified by Etter and Lin.

Response to Arguments

5. The 102(b) rejection of claims 1 and 5-6 is hereby withdrawn because Etter fails to teach a structure wherein an adhesive sheet is applied to a substrate and then a photoresist sheet is applied to the adhesive sheet on the substrate.

6. Applicant's arguments filed December 1, 2003 have been fully considered but they are not persuasive. Applicants that the prior art reference of Etter does not pertain to a photoresist sheet as set forth in the instant claims. The examiner respectfully disagrees. Conventionally a photoresist is an organic polymer, which changes properties (i.e., solubility, hydrophilicity, etc.) upon exposure to light and forms an image. Etter clearly teaches that the taught imaging layer signifies an unexposed, latent image-bearing or image-bearing

Art Unit: 1752

photographic layer. Suitable layers can be of the silver halide or non-silver halide photosensitive type (c. 6, l. 8-16). Etter further teaches in example 3 that the resulting element can be stored, exposed and processed to form an image (c. 7, l. 38-40). It is the examiner's position that the imaging layer of Etter clearly meets the limitations of the claimed photoresist sheet.

7. Applicants have failed to provide arguments pertaining to the rejection of the claims over (1) VanIseghem in view of Etter and Lin; (2) Schupp in view of Ugolick; and (3) Couture in view of Etter and Lin. The secondary references of Etter and Lin are relied upon solely to show what is well known and conventional in the art in regard to pressure sensitive adhesives. It would have been obvious to one of ordinary skill in the art to use poly (n-butylacrylate), polymethyl acrylate, poly-2-ethylhexyl acrylate, polyethyl acrylate or mixtures thereof as the acrylate polymer of VanIseghem or Couture because it is well known and conventional in the art of pressure sensitive adhesives as exemplified by Etter and Lin. Likewise, Ugolick is relied upon to teach that preferred acrylic based pressure sensitive adhesives comprise polymers of acrylic monomers, polymer of methacrylic monomers and copolymers, blends and mixtures thereof. Examples include methyl acrylate, ethyl acrylate, n-butyl acrylate, 2-ethylhexyl acrylate, and methyl methacrylate (c. 5, l. 26-48). It would have been obvious to one of ordinary skill in the art to substitute methyl acrylate, ethyl acrylate, n-butyl acrylate, or 2-ethylhexyl acrylate for the exemplified methyl methacrylate of Schupp and expect reasonably similar results.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

9. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

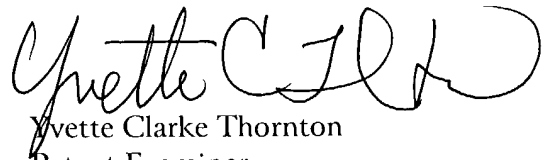
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 571-272-1336. The examiner can normally be reached on Monday-Thursday from 8:00 am to 6:30 pm.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff, can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information

Art Unit: 1752

about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Yvette Clarke Thornton". The signature is stylized with a large, looped "Y" and a cursive "C" for "Clarke".

Yvette Clarke Thornton
Patent Examiner
Art Unit 1752

yct
April 14, 2004